Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

the Fortietieth Parallel Survey is probably the equivalent of the glacial period of the East. It is so regarded by Clarence King, in his "Report," and was certainly subsequent to the time when the early men flourished.—*N. Y. Independent.*

The preceding abstract suggests the following observations. Some of the vertebrata reported as found with the human remains in the auriferous gravels are obviously out of place, or erroneously determined. Thus, *Elotherium* does not belong to the Pliocene fauna, nor even to the Upper Miocene (Loup Fork) but to the lowest Miocene or Oligocene (White river). *Mastodon obscurus* is Upper Miocene. How they come to be included in the list remains to be explained.

The occurrence of human implements mingled with the Pliocene fauna in Oregon, was asserted in this journal for 1878, p. 125, and some dozen species of vertebrata cited as cotemporaries. A more extended list of the mammalia was given in the Bulletin U. S. Geol. Surv. Terrs., 1879, p. 48; and of the birds in the same for 1878, p. 389. The entire number of vertebrata now determined from this locality in Oregon amounts to twenty-seven.

During the past summer the writer obtained bones of *Mylodon* from the auriferous gravels of the Klamath river, near Yreka, Cal., from excavations which he personally examined. He also obtained vessels of vesicular basalt which were undoubtedly procured from the same excavations.

The relation of this formation to the European Pliocene is discussed in an essay on the parallelism of the American and European horizons, in Hayden's Bulletin U. S. Geol. Surv. Terrs., 1879, February.—*E. D. Cope.*

GEOGRAPHY AND TRAVELS.[1]

HAYDEN'S NEW MAPS OF WYOMING, ETC.—The forthcoming reports of Dr. Hayden's Geological Survey, on the field-work of 1877 and 1878, will contain three topographical atlas sheets, of the same size, and on the same scale (4 miles to an inch) as those in the Colorado atlas. These sheets illustrate portions of Wyoming, Idaho and Utah, each of them covers 2½ degrees of longitude, and 1¼ degrees of latitude, and includes an area of about 11,000 square miles.

The south-eastern of the sheets covers the country from longitude 107° to 109° 30′, and from latitude 41° 45′ to 43°. It includes the barren plateaus of the continental divide, north of the Union Pacific R. R. The valleys of the Sweetwater and Wind rivers, and a part of the Wind River range.

The south-western sheet lies directly west of the latter, extending to longitude 112°. It embraces the Green River basin, and, farther westward, a succession of parallel ranges of no great height, alternating with broad valleys drained by Bear river and branches of the Snake.

---

[1] Edited by ELLIS H. YARNALL, Philadelphia.

The third sheet lies north of the last, extending to latitude 44° 15′. Besides a small portion of the Snake River plains on its western edge, nearly all this area is occupied by rugged mountains. Among them may be noted the Tetons, the Gros Ventre and the northern part of the Wind River ranges.

The plan of the geographical work has been sketched in some detail in previous reports of this survey, and, therefore, nothing more than a brief epitome will here be attempted.

The whole work is based upon a system of triangulation, carried on with an eight inch theodolite, reading to 10″. In the scheme there were two base-lines measured, one near Fort Steele, Wyoming, the other on Bear River, in South-eastern Idaho. Each of these was between five and six miles in length. The mean error of closure of the triangles in the expansion was 5.3″. The sides ranged from twenty to seventy miles in length. Altogether, forty-nine points were located by the primary triangulation.

Secondary triangulation was carried on by a theodolite reading to minutes. The mean error of closure of secondary triangles is 3′.

The topography was secured from elevated points by map-sketches made on an assumed scale, with distances and angles estimated, and by perspective sketches, on which the topographical features were represented as they appeared to the observer at his station. All salient points in the landscape, peaks, angles of plateau, minor summits and hills, and junctions of streams, were located by intersections of sight lines from two or more stations, and in plotting the maps, in the office, the map-sketches are corrected by these locations. On these three sheets, about 3300 points, including stations, were located, being one in every ten square miles. Altogether, between 600 and 700 stations were occupied, or about one in each fifty square miles.

A few words as to the measurements of heights, and the method of construction of contour lines. Elevations were measured by means of the barometer, and the vertical circle of the theodolite. Camps, stations, and all salient points on the routes traversed, were measured by the former instrument. Aneroids were used but little and the results accepted with great caution. The vertical circle was used in determining the relative heights of all points within range of the stations—all peaks, passes, gaps, heads of spurs, etc., in short, everything that could be located, even approximately. Thus the heights of a great number of points were easily determined, and these, placed upon a perspective sketch, which may be supposed to be reasonably accurate, indicate approximately the heights of all portions of the sketch.

Difference of heights are expressed on these maps by contours. The space between two of these grade curves represents a difference of elevation of 200 feet. Where the slopes are gentle the curves are far apart, while among the cliffs of the mountains and plateaus, they are crowded together, in many places being almost run into a single line.

These curves are not "run," nor are they accurately located, as would be done in a minute survey. They do, however, express the orography, and, approximately, the elevation, over the whole map.

They are constructed mainly from the perspective sketches, aided and directed by the measured heights. As an example of the method of their construction, take a mountain spur, starting from the peak and extending to the valley below. Its summit and base, and each point of change of slope, are located, and their heights are known; we have also a profile sketch of the spur. Given these data, and what is easier than to distribute the curves with a considerable approach to accuracy, between those points actually determined.

This method of representing orography is a strictly natural one. Supposing the light to be vertical, grade curves must necessarily produce the same lights and shades as in nature. All the details of the topography, down to forms not above 200 feet in height may be expressed.

For masses for the representation of geological outcrops and formations, these grade curves are invaluable. They enable the geologist to draw accurately the outcrops not only of horizontal, but of inclined strata, over vast areas, from a few isolated observations. In many cases, by thus expressing the orography of a range, the key to its geological structure is supplied.

The maps of this Survey have been justly regarded as among the finest specimens of cartography ever published in this or any other country.

AFRICAN EXPLORATION.—Dr. Rohlf's expedition to Wadai left Bengasi on the Fourth of July, last, for the Kufara oasis. The oasis of Djâlo and Aujila were found to be ninety-eight and sixty feet respectively above the sea level. Heretofore they have been thought to be below it. At Kufara the party were attacked and plundered and obliged to return to Bengasi.——Dr. Oscar Lenz, well known for his explorations on the Ogoowé, has been sent by the German African Society to Morocco where he intends to cross the Atlas and investigate the geology and natural history of the southern districts. The Society also intends sending young travelers to this country, where they can get accustomed to Mohammedan life and become better fitted for longer journeys in Central Africa.——The *Academy* states that Mr. Donald Mackenzie has returned to England from Cape Juby, in North-western Africa, where, during his stay, many people came to enquire about trading and stated that there were numerous animals of all kinds in the interior, and the country was very fertile. Mean-while, the French are proposing to construct a railroad across the Sahara to connect Algeria with the river Niger. The French Government has appointed a Commission to conduct preliminary investigations, and French engineers are exploring the line of the proposed road as far as the Laghouat on the south. M. Paul Soleillet will leave shortly for St. Louis, Senegal, under orders to visit the unexplored regions lying to the east of that colony as far as Timbuktu. The *Nature* states that at a recent sitting of the Paris Geographical Society, Mr. Soleillet read a paper proposing that the railroad be made from Dakkar, on the Atlantic coast, and St. Louis. The Senegal should be opened to navigation as far as Bafoulabé and a canal constructed from thence to Bamakou, on the Niger. The Niger is now navigable from Bamakou to Timbuktu and lower down for a distance of 1500 miles, The aggregate expense of the whole work is estimated at $5,000,000, and the population brought into close connection with Senegal at thirty-seven millions. These projects have been adopted by the High Commission and the survey for the canal will begin immediately. M. Soleillet believes that the semi-civilized races occupying the region he is to visit will be friendly to Europeans, and offer no obstacles to the success of this great project. The country from Senegal to the Niger is level, fertile and inhabited by two races, the Bambara and Solenké. Nothing would be easier than the establishment of a preliminary trade-road between the two rivers; it would suffice to mark out a straight line and clear it of bushes to enable a bullock-dray to travel for 200 or 300 miles. Amongst other products is a vegetable wax which can be reduced to oil, and made to serve many useful purposes in the arts.——Drs. Greef and Gasser have been despatched on a scientific mission to study the Zöology of the West African Islands.——By means of the electric light the junction of the Algerian survey with the European net-work of triangles has been completed.——One of the most important events in African exploration during the past year has been the discovery, by two Frenchmen, MM. Zweifel and Moustier, of the sources of the river Niger. Starting from Sierra Leone they ascended the Rokelle river and succeeded in crossing the Kong mountains, heretofore impassable in consequence of the hostility of the natives, and visited the heads of the three streams which, uniting after a short distance, form the Niger.

MICROSCOPY.[1]

IMPROVEMENTS IN CELL-CUTTING.—Cells cut from thin sheet wax or lead are rapidly coming into use. They can be built up one upon another to form deeper cells, but are most applicable where great thickness is not required, and have the great advantage that they can be prepared, as wanted, by anybody, of any required size, with very little trouble, and almost without

---

[1] This department is edited by Dr. R. H. WARD, Troy, N. Y.